

PARK (R.)

WITH THE AUTHOR'S COMPLIMENTS.

MATERNAL IMPRESSIONS;

MOTHER'S MARKS.

AN EXPOSÉ OF A POPULAR FALLACY.

BY

ROSWELL PARK, A. M., M. D.,

Demonstrator of Anatomy, Chicago Medical College, &c. &c.

Reprinted from "The Southern Clinic," of February, 1879.



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A paper read before the Chicago Medical Society, by
ROSSELL PARK, A. M., M. D., (DEMONSTRATOR OF ANATOMY, CHICAGO
MEDICAL COLLEGE, ETC.)

In the hope that it may be permitted me to present, in an acceptable manner, a statement of a few facts, together with some deductions from the same—even without adding anything to the sum total of human knowledge—and to help solve a doubt which must at some time present itself to the minds of all, I beg leave to draw attention to the following effort to answer the query:—

Whether there is the slightest foundation, in theory or in fact, for the prevalent popular notion that "*maternal impression*," *i. e.* the mental condition of a woman "*enciente*," can be transmitted and translated into, or perpetuated by abnormalities in the development of the fœtus.

From time immemorial this question has been decided in the affirmative by the laity, and to-day, among half the population, this explanation of any unusual appearance which the enquiring eye may perceive in the new born is accepted as full and sufficient. In many cases the mother deems it a duty she owes to herself and family to exculpate herself from any self-imputed complicity in the matter, by attaching

the blame to some unfortunate individual or untoward accident. Nor is this at all strange. The mother but follows the general custom in seeking to find some explanation within her mental grasp for what she cannot understand; and it is no difficult matter, as she conjures up the past, to persuade herself that this dream, or that horrid object, or some accident, left a much more lasting impress on her mind than she, at the time, realized. And so—*post hoc, ergo propter hoc*—all doubt is dismissed from her mind, it is a clear case; and her friends sympathize, and warn each other of the necessity for caution under like circumstances.

The above is not an individual case, nor overdrawn. This notion is as wide spread, almost, as the race, and as old as history; and on account of its prevalence, if not for its intrinsic interest, is worthy of investigation. Ambrose Paré, in the 16th century, devoted a chapter of one of his works to "Monsters which take their cause and shape from the imagination." The smile of incredulity on the physician's face which such an explanation provokes will not dissipate a firmly settled conviction.

Let us see what anatomical investigations into this subject reveal. We know that the circulatory system of the foetus is developed much like that of the chick in ovo. That is, that it takes its origin, and the very first molecule or blood corpuscle begins to circulate by a power inherent in the embryonic mass, and in no way transmitted from the mother. Its circulation having begun independently, continues so to this extent, that no particle of blood—as such—passes from the foetal circulation to that of the mother. It goes as far as the placenta, which plays the part of the lungs, *pro temp.*, but is returned, its sphere of action confined to this round.

The idea maintained by some, that the ramifications of the umbilical vessels inosculate freely with those of the uterus is, in the light of the most recent investigations, no longer tenable. The maternal blood current circulates freely around the caecal terminations of the vessels from the foetus, (the "intimate interlacement" of Hermann,) yielding up

freely of its invigorating gasses and nutrient material, and returning (to the lungs, etc., of the mother) for a fresh supply; but not one corpuscle, it is probable, nor any particle of formative or germinal matter which could bear any stamp or impress, or give any direction to future development, passes across the membrane which the vascular walls or placental structures interpose. Most painstaking researches by most industrious scholars, using variously colored injections and every appliance, confirm these statements.

To be sure the fœtus must receive a certain amount of nutritive material from the mother's blood, but this passes through, like the gasses, by osmosis, and has no more power to give special impetus to growth according to the bent of thought of the mother, than milk at the breast, or from the udder of the cow; *except*, and granted that deficiency of supply or change in its quality may of course lead to arrest of development, or to unusual development.

Some assert that this is not a simple osmotic process, but that the placental villi play the role of discerning cell, abstracting the nutriment from the mother's blood, and in some way passing it over to the fœtus. But be the minute processes what they may, this main fact being granted, the question arises: Can the emotions of the mother cause in any way any such derangement of supply as we have spoken of?

While it is far from my intention to deny that the mother's general condition may depend much upon that of her mind, I assert that it is impossible to predict in what, if in any special direction, this derangement will be manifested; and one is justified in imposing the burden of proof upon those who sustain a contrary view. I would not be understood as speaking lightly of, or under-estimating the influence of the mind, even upon the nutrition of the body, and the thus indirect effect of a mental condition upon the fœtus; but I would insist that the influence of this derangement cannot be pre-determined, nor estimated in terms of departure from the normal standard.

Add to this the fact that, no matter what the peculiarity

of growth may be, nor how distorted its various features of conformation, a careful examination always shows it to be a reversion to some lower type of growth, to some other embryonic form,—a species of “*atavism*,” if I may use the term.

It is unnecessary here to go into a pathological discussion, showing how most departures from the physiological standard tend to revert to some more embryonic type. This principle, long known and recognized, has of late assumed a more important position from its bearing on questions of evolution. Consider, in addition to this, the known fact that every foetal malformation has its analogue among those of the lower classes of animals, either in their embryonic or mature state; and we have a light shed upon the subject that should do much towards showing up its superstitious features.

An objection may be raised here to the effect that there is a direct interchange of material *before* the placenta is formed even though the placental circulation be as above described. Let us examine this point. The chorion, which acts much as the placenta subsequently does, is connected with the decidua reflexa much as the placenta is connected with the uterus; its villousities being “dovetailed” with those of the decidua, and this union is at first easily severed. Just here let me quote from an admirable report on this matter, by Dr. Waddel, of Toledo, O.: “Indeed we cannot but admire the provisions which have been made to shield it (the ovum) from such influences, (maternal caprices and other supposititious disturbing influences.) Up to the third month its attachment to the mother is far from being intimate, being sustained by imbibition of an albuminous secretion, * * * first during its passage along the fallopian tube, and afterwards from the mucous membrane of the uterus, by which it is encapsuled. Very recent investigations have shown that even as late as the second month the ovum is loosely attached to the uterine decidua.”

Finally, after the third month chorion villi are simply increased in number and size, while their relative position and function remain unaltered; that is to say, that though their

names and the grosser conformation of the parts may differ, their respective functionment is essentially the same; and all that has been said of the placental circulation, in this respect, holds good of the pre-placental.

In this way it can be shown, that at no period in embryonic existence is there a direct connection between the mother and foetus; the sole function of the placental and uterine apparatus being—the one to furnish a resting place, where the work of development may proceed undisturbed; the other to provide a supply of plasma, or nutrient material, to be assimilated in one way or another; in other words, that the process of growth goes on as independently (considerations of source and quality of nutrition not forgotten) as if it took place entirely without the organization of the mother.

When we see so many vices of conformation in animals hatched from the egg, and in those animals besides man which have an intra-uterine existence, the pretext of some predominant thought, fear, or desire in the mind of the human mother is not justified.

But if it be urged that possibly some lymphatic or nervous connection exists, by which this mysterious influence is transmitted, the answer is ready at hand, that neither nerve nor lymphatic have even been discovered in the placenta, and according to Whittaker, Meadows, Küss, and others, the cord contains neither nerves, lymphatics, capillaries nor *vasa-vasorum*.

It is no easy matter to decide questions of this nature "*a priori*," if, indeed, it be possible. Every physiologist admits the power of vivid impressions to affect the nervous system, and so the whole body. "Observations have long established the fact that such emotions influence the state of functions, not only of the digestive and glandular, but muscular organs, as the heart and uterus. Physicians are familiar with cases in which vivid impressions produced uterine contractions, and even miscarriage, or have disturbed the catamenial function." [Smith.] Very true, and it would be unscientific to assert that such influence may not at times affect development in

the way above mentioned; but I would insist—first, That it is impossible to explain in this way the malformations that occur; and secondly, That, given the emotion of any nature and from any cause you please, it cannot be predicated *what*, if there be any, the deformity will be. (Illustration of this, further on.)

Cases and varieties of arrest of development, or of intra-uterine pathological lesions are numerous, collectively, numberless; but what does this signify? A conflict of the laws of evolution and development? Rather the harmonious action of some of those very laws with which we are not yet familiar. Let us face this matter squarely, and, while acknowledging our ignorance concerning intra-uterine life, be not deceived by those who would foist upon us specious theories, not sustained by the facts with which we are acquainted.

Let us take for granted that the ovum or germ has impressed upon it, at the time of impregnation, the general and hereditary features of its growth. (Then, and then only, can it receive such impress from the father, and then it must, too, to a large extent at least, from the mother.) Who can doubt that it now possesses in itself all its potentialities of growth. All that it now needs is a suitable resting place and a regular supply of nutriment, and it will grow on, independently of external conditions which do not interfere with such supply.

While fully recognizing the importance attaching to the "laws of heredity," whose existence is not disputed, though they be but meagrely understood, I wish to draw the line distinctly between the action of such laws and the subject of this paper, which is a matter entirely separate, and whose laws, if they exist, have as yet unrecognized existence.

Should any one hold that the general plan of action—of development—is not laid down at the time of impregnation, (if it be not inherent to the ovum,) but somewhat later in the life of the embryo, it must still be conceded that this must nevertheless be very early in such life; else he

would have to adhere to a theory of fortuitous circumstances, and no true physiologist can do that.

In either case, however, how equally absurd to try to account for some vice of conformation, some congenital deficiency, which must have dated almost consentaneously with the formation of the embryo, and probably before the mother was aware of her condition, by something which happened during the later months of her pregnancy!

Spina bifida, extrophy of the bladder, harelip, intra-uterine peritonitis, or bronchocele, the various forms of so called "hermaphroditism," anencephalic and partially double monsters, intra-uterine amputations, supernumerary members, &c.; these are but a very few examples of foetal abnormalities which may occur; and these may, and for the most part *must* have originated very early in embryonic life, and, therefore, months before the occurrences to which they are usually credited.

Then there are pathological lesions of the maternal organs; *e. g.*, traumatic lesions, diseases of uterus, placenta or membranes, diseased ova, which are yet capable of partial development, hereditary transmission of any abnormality, even though a generation or two intervene, and the different diathetic and cachectic conditions so common. Any one of these may be sufficient to cause an arrest of development, without having to invoke a theory which shall deal with still more inscrutable causes.

Excess or exuberance of development also may as easily occur; nevertheless, there are too many who would endeavor to cover the whole ground with the stereotyped explanation which it is the object of this paper to combat.

What reasoning physiologist would endeavour to explain in this way a double monster, or the presence of twins, when the real cause was the existence and degree of proximity of *two* primitive traces instead of *one*?

How many women are there who pass through the trying ordeal of gestation with unruffled tempers, without cares and anxieties, or without seeing—especially in cities—objects

deformed and unpleasant, and, therefore, matter for sympathy and remark? And does the percentage of marked or deformed children born to these exceed that of similarly marked offspring born to those whose existence and mental condition have been undisturbed by extraneous circumstances? I have yet to learn of statistics, or proof of any kind which can be adduced in illustration of an assertion to this effect. But carry the matter to its legitimate extreme. Has anything analogous to this matter of maternal impressions been noticed among other animals? Except the single instance mentioned in Genesis, chapter xxx., which must be discarded as an unscientific, and, therefore, unavailable account, I have never heard, nor have I been able to find any account of an instance of the kind.

The chick in ovo goes on to maturity and is hatched, provided only that its surroundings—warmth and air—are favorable. The spawn of fish, the eggs of reptiles, the larvæ of insects, proceed in the same way, save that they are much more exposed and subject to ever varying conditions; and when abnormalities occur they bear the same relation to the parent that changes in the human foetus do, provided always that we must not forget the respective sources of pabulum for their needs of growth.

Farther, careful enquirers into this matter have taken pains to make inquiry of their patients approaching confinement as to their fears and apprehensions concerning their offspring.

Wm. Hunter pursued this course with two thousand cases, and “in no case did a single coincidence of mental emotion with a corresponding abnormal development occur in all his observations.”

Dr. Fisher, of New York State, found that, though the majority of twelve hundred cases expected some such marking, only *three* cases occurred in the entire number; and “these in no way verified the mothers’ prediction.”

(A similar experience in a very limited way has been the writer’s.)

As the time for parturition draws near, everything that happens about the patient is colored to suit her own subjective condition. The mind becomes doubly susceptible, and a very slight matter serves to make an impression with which it is not at all commensurate. Swayed by hope and fear, the latter emotion not infrequently asserts itself as the stronger; and she often apprehends more for the condition of the child than for her own. She fears, without knowing why; and if everything turns out well she laughs at her foolish fright, or congratulates herself upon the narrow escape; but if, by some coincidence, the child bear some mark, or, worse yet, be deformed, the poor mother shakes her head, and by a woman's irresistible "logic," convinces herself that she knew all the time that it would be thus and thus. It may seem, at first, trivial to lay so much stress upon these subjective features; but a little reflection will convince that they have an important bearing on the subject.

An intra-uterine amputation of the thigh, for example; might happen comparatively late in fetal life. Let us suppose an easily impressionable woman has seen a maimed cripple on the street, two months before her confinement. It has made a powerful impression upon her mind. She comes to term, and is delivered of a child with but one sound leg and the stump of another. Of course the usual explanation is offered, and the shudder which the sight first provoked is repeated every time the mind reverts to it. All very well. The claim is, that after this object created such an impression on her mind, the peculiar impetus was transmitted to the fetus, and the plan of its growth so altered as to admit of this change; this supposed arrest of growth of one limb.

But the accoucheur, quietly examining the membranes, finds enclosed therein the remains of the missing member; and further search reveals strong bands extending from one part of the sac to another; or possibly the former have been entirely absorbed, and only the latter are found. The skilled scientific eye has found the clue that unravels the

whole mystery; for I never yet heard of any claim that a mental impression might set up such a degree of inflammation in the amnion as to cause the results here stated, to say nothing of the intrinsic absurdity of the idea on grounds mentioned above.

Yet another difficulty arises in endeavoring to decide this matter. We are confronted by a number of recorded cases—some even by distinguished men, whose very names carry authority—where the possibility of “mother’s marks” seems to be no longer involved in doubt. How to meet this objection is, perhaps, the most difficult task within the scope of this paper.

Of the majority of them, we can probably say, as a distinguished French clinician recently said of most of his own earlier cases—reported before he attained his present position as “*facile princeps*”—that he considered them worthless, because unreliable.

Not until recently, (if, indeed, yet) have methods of investigating nature and her laws arrived at anywhere near perfection; and only those specially trained are fitted to apply the stern inductive logic of modern science in studying her phenomena and formulating her laws. On these grounds, therefore, we are justified in rejecting most of those cases as inaccurately and unscientifically recorded.

A very strong mental effort is required to avoid tinging the report of any case with the tint by which such cases are surrounded in the fancy of the reporter. Nor is it any slur upon the character of such an one that he should attach the stamp of his individuality to his writings. The sole objection is, that it is so much labor lost; because such work is worthless from a scientific point of view.

I will not prolong this paper by quoting cases, either those utterly absurd and foolish, or those few which are entitled to consideration on account of their source. Such reports are accessible to those interested enough to look them up. But having disposed of most of them on above grounds, what

shall be done with the remainder? If it be not presumptuous in me, I would make the following answer:

Doubtless some of them may be owing to pure coincidences, than which many stranger ones have happened. Of the few that remain, I think we ought to suspend our judgment for the present. The facts of such a case are so enshrouled in uncertainty, the testimony of the interested parents so liable to error, the sources of fallacy by no means yet reduced to a minimum, that justice to science, as well as to individuals, seems to demand this course.

Nor is this urged in any iconoclastic spirit; rather do I say that, as we all earnestly desire to arrive at the truth, we must first eliminate whatever will not stand a crucial test, and then, if the facts be not sufficient to build a theory upon, patiently and diligently observe and note, using the most rigorous methods, in full faith that, if the truth be still hidden, we shall not be led into error.

Therefore I contend—and it has been the object of this paper to convince—that while we are hardly prepared to deny explicitly and *in toto* that a mother's mental condition, be it temporary or more or less permanent, may in some obscure and inexplicable way modify the normal development of the fetus in utero, still we are certainly not yet in a position, either—in the first place—to even admit that such an influence can make itself felt; or, secondly, and supposing this possible, to pretend in this way to explain the palpable abnormality.

That is, in brief, granted that strange vices of conformation do occur, we must look to something deeper and beyond *mere desires* or *mental impressions* for an explanation thereof.

